



*Ultralift Transporting Robot*



## Technical Demonstration Summary Sheet

### ULTRA LIFT MOTORIZED HANDCART

#### THE NEED

The Idaho National Engineering and Environmental Laboratory (INEEL) Decontamination and Decommissioning Program has a need for a device to aid in moving heavy objects up and down stairs. The current methods include manual lifting, a forklift, or a hand truck, to transport heavy objects up or down stairs, but this is limited to areas large enough to accommodate such equipment. Workers need such a technology to reduce the potential for back strain while removing waste or equipment in facilities being decommissioned.

#### THE TECHNOLOGY

The Ultra Lift is a motorized two wheeled handcart that lifts heavy objects to ease loading into vehicles or onto loading docks with the ability to traverse stairs and steps while loaded. The Ultra Lift is designed specifically for difficult moving and handling applications. The Ultra Lift contains a battery operated screw drive that vertically lifts heavy objects and walks the load over steps and obstructions. The Ultra Lift uses a leveraged load break back design to make heavy loads manageable by a single person by keeping the weight over the wheels. It is capable of lifting objects up to 1,500 pounds to a height of 36 inches. The unit is height adjustable with a variable position strap, has a 4 wheel swing-out dolly attachment, safety override clutch and fully automatic anti-reverse brake. The battery is a sealed, spill-proof 12V, 34 amp hour battery with charger and pre-wired charging plug. This unit cost approximately \$3,000.

#### THE DEMONSTRATION

The Ultra Lift was demonstrated in July 2001 at the INEEL as part of an INEEL Large Scale Demonstration and Deployment Project funded by the DOE National Energy Technology Laboratory D&D Focus Area. The technology was used at INEEL Test Area North to transport a 110-pound robot up and down a narrow stairway in a contaminated area with limited access tight corners and small landing areas.

#### THE RESULTS

The Ultra Lift traversed the stairs without incidence and eliminated the need to knock out walls or prepare extensive safety reviews and procedures to manually move the robot to the basement. The operation was a simple task for two people, one to operate the handcart controls and one to stabilize the load. This operation typically would have taken four people with special safety precautions to prevent loss of control of the load, and would expose workers to possible injury from lifting and maneuvering in awkward positions. D&D Operations personnel were very excited about the new handcart and now make it available for use in every facility.

#### BENEFITS

- Reduces risk of back injury.
- Reduces labor costs (fewer people are needed to move equipment).
- Eliminates damage to equipment.
- Able to lift objects weighing up to 1500 pounds.
- Able to lift objects to a vertical height of up to 36 inches.

#### CONTACTS

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*Ultra Lift*

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<http://id.inel.gov/lsddp>

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